ABSTRACT OF THE DISCLOSURE

A parallel loop transformation method for race detection during an execution of parallel programs that includes generating a data structure of a condition statement branch determinant string Cstr required for loop transformation by taking an original parallel loop as an input and extracting execution path information, transforming the original parallel loop into a full race covering loop using the data structure of the condition statement branch determinant string Cstr required for loop transformation and the execution path information as an input statement, instrumenting the race detection function in order to activate the race detection function for the transformed parallel loop which are previously generated, and executing the race detection while running the parallel programs according to instrumented detection functions.